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Ramotowski

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(54) **METHOD FOR INCREASING FRACTURE TOUGHNESS AND REDUCING BRITTLENESS OF FERROELECTRIC POLYMER**

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(57) **ABSTRACT**

A method is provided that increases fracture toughness and reduces brittleness of a semi-crystalline ferroelectric polymer material while substantially maintaining ferroelectric properties of the material. The material is heated in an inert oxygen-free atmosphere to a temperature above the material's Curie transition but below its melting temperature. The material is then irradiated with beta particles to provide a desired level of fracture toughness that substantially maintains ferroelectric properties of the material. In the case of poly(vinylidene fluoride-trifluoroethylene), the heating temperature is just above the material's Curie transition temperature, the beta particles have an energy level of approximately 2.5 mega electron volts (MeV), and the radiation dose should not exceed approximately 50 megarads (Mrads).

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(58) **Field of Search** 257/295, 768, 257/769; 438/3, 255, 758, 778, 781

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20 Claims, 2 Drawing Sheets

